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EXAMINER	
DANIELS, ANTHONY J	
ART UNIT	**PAPER NUMBER**
2615	

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/992,480	LIU ET AL.
	Examiner	Art Unit
	Anthony J. Daniels	2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,13-18,20,22-25,27,28 and 30-40* is/are rejected.

7)☒ Claim(s) *12,19,21,26,29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 22-42 been renumbered 20-40, respectively.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. *In method claim 2, step d2) <u>defers</u> the performing act if motion/saturation has occurred, yet step d3) <u>terminates</u> the performing act if motion/saturation has occurred.*

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,17,18,20 are rejected under 35 U.S.C. 102(b) as being anticipated by Ferre et al. (US # 5,063,524).

It is noted that the USPTO considers Applicant's "motion/saturation" language to be anticipated by any reference containing one of the corresponding subsequent elements.

As to claim **1**, Ferre et al. teaches a method for preventing motion/saturation from corrupting image capturing during a global exposure time of a sensor, comprising: performing for each pixel of said sensor (see Col. 2, Lines 63-66):

a) determining a difference between an illumination measurement obtained during current image capturing and an illumination estimation generated during previous image capturing (see Col. 2, Lines 58-62; Lines 22,23)

b) comparing said difference with a threshold value (see Col. 2, Lines 63,64)

c) determining, based on step b), whether motion/saturation has occurred (see Col. 2, Lines 64-66).

As to claim **17**, Ferre et al. teaches the method of claim 1, further comprising: utilizing a soft decision rule (see Ferre et al., Col. 6, Lines 27-67; Col. 7, Lines 1,2). *The language "for preventing error accumulation due to slow motion" is an advantage of the limitation; it is not a further limitation of the claim. Also note, the language "soft decision rule" is being rejected on how it is interpreted from the specification (see pg. 28.).*

As to claim **18**, Ferre et al. teaches a method of claim 17, wherein said threshold value is characterized by a first range of values (see Col. 6, Lines 37-40; *values greater than the threshold value*) and a second range of values that include said first range of values (see Col. 6, Lines 66,67, Col. 7, Lines 1,2; *values greater than the second threshold* value) wherein said first range of values is characterized by a first constant parameter m1 and said second range of values is characterized by a second constant parameter m2 where $0 < m1 < m2$ (see Col. 6, Lines 66,67, Col. 7, Lines 1,2). *The language "and wherein m1, DJ, and length of global exposure time are chosen so to achieve a desirable balance between highest possible signal-to-noise ratio and least possible motion blur" is an advantage of the limitations in the claim; it is not a further limitation of the claim.*

As to claim **20**, Ferre et al. teaches a method for synthesizing from multiple high dynamic range motion blur free images, said method comprising the steps of:

a) capturing a first image sample (see Col. 2, Line 18-21);

b) generating for each pixel a current illumination estimation based on said first captured image sample (see Col. 2, Lines 22,23; *An image sensor produces illumination values of light inherently.*)

c) capturing a next image sample (see Col. 2, Lines 18);

d) determining for each pixel whether motion/saturation has occurred (see Col. 2, Lines 64-66)

e) repeat steps c) and d) until no more image samples are to be captured (*There are a finite number of images captured and motion detection has to end eventually.*).

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 3,13,14,16 rejected under 35 U.S.C. 103(a) as being unpatentable over Ferre et al. (see Patent # above) in view of Sezan et al. (US # 5,600,731).

As to claim **3**, Ferre et al. teaches the method of claim 1, wherein the threshold on a predetermined parameter (see Col. 2, Lines 63,64). *The language "configured to achieve a desirable tradeoff between signal-to-noise ratio and motion blur" is an advantage of the limitation in the claim; it is not a limitation of the claim.* The claim differs from Ferre et al. in that it further requires that the threshold value be generated based on a prediction variable.

In the same field of endeavor, Sezan et al. teaches determining an estimation based on a prediction variable (see Col. 3, Lines 13-16; *LMMSE is an estimation of noise*

minimization). In light of the teaching of Sezan et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to use LMMSE prediction variable to acquire the threshold in Ferre et al. Such estimation can take noise error of a sensor into account thereby reducing the false positives of motion detection.

As to claim **13**, Ferre et al., as modified by Sezan et al., teaches the method according to claim 1, wherein said steps a)-c) are performed based on parameters calculated recursively (see Ferre et al., Col. 2, Lines 16-18; *{A sequence of images are being used for motion detection; thus, recursive calculation is inherent in the detection of motion in a sequence of images.}*), said parameters including said weighting coefficient (see Sezan et al., Col. 13, Lines 16-23), overall variance (see Sezan et al., Col. 13, Lines 16-23), and covariance (*The method includes noise variance estimation between two random variables in another embodiment of the invention; variance between two random variables is covariance)*.

As to claim **14**, Ferre et al. teaches the method of claim 1. The claim differs from Ferre et al. in that it further requires that steps a)-c) are performed on parameters calculated non-recursively.

In the same field of endeavor, Sezan et al. teaches calculating parameters non-recursively (see Sezan et al., Abstract, Lines 1-5). In light of the teaching of Sezan et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Ferre et al. to include calculating parameters non-recursively. Such a modification would be much faster when implemented and would not consume as much memory.

As to claim **16**, Ferre et al. teaches the method of claim 1 and an illumination estimation (see Col. 2, Lines 22,23, "...value of its luminance"). The claim differs from Ferre et al. in that it further requires the illumination estimation be calculated using linear minimum mean square error.

In the same field of endeavor, Sezan et al. teaches estimation using linear minimum mean square error (see Abstract, Lines 8-12). In light of the teaching of Sezan et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to use LMMSE estimation to acquire the illumination estimation in Ferre et al. Such estimation can take noise error of a sensor into account thereby outputting an ideal illumination estimation.

5. Claims 4,7,22,23,25,30,32 rejected under 35 U.S.C. 103(a) as being unpatentable over Ferre et al. (see Patent # above) in view of Pucker, II et al. (US # 6,298,144).

As to claim **4**, Ferre et al. teaches the method of claim 1, wherein said image capturing occurs a multiplicity of times during global exposure time (see Col. 2, Lines 16-18, "...sequence of images."). The claim differs from Ferre et al. in that it further requires the optimal illumination estimation be generated based on the multiplicity of measurements.

In the same field of endeavor, Pucker II, et al. teaches the optimal illumination generated based on the multiplicity of measurements (see Abstract, Lines 11-22). In light of the teaching of Pucker II, et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Ferre et al. to base the

generation of the optimal illumination measurement on the multiplicity of measurements. Such a modification would allow for a decrease in motion blur and fixed pattern noise.

As to claim **7**, Ferre et al., as modified by Pucker II et al., teaches the method of claim 1, wherein said image capturing occurs a multiplicity of times during said global exposure time thereby producing a multiplicity of measurements (see Ferre et al., Col. 2, Lines 16-23), and wherein an optimal illumination estimation for said sensor is generated based on selectively accepted multiplicity of measurements (see Pucker II, et al., Abstract, Lines 11-22).

As to claim **22**, Ferre et al. teaches a system having a sensor capable of capturing a multiplicity of image samples during a global exposure time, comprising: motion/saturation detecting means for determining for each pixel whether motion/saturation has occurred between a previous capturing and a current capturing (see Col. 2, Lines 58-66). The claim differs from Ferre et al. in that it further requires processing means for determining for each pixel whether to accept an image sample captured during said current capturing; generating an optimal illumination estimation for said sensor based on selectively accepted multiplicity of image samples captured during said global exposure time. *The language "thereby preventing motion/saturation from corrupting image capturing" is an advantage of the limitation in the claim; it is not a limitation of the claim.*

In the same field of endeavor, Pucker II, et al., teaches a processing means for determining for each pixel whether to accept an image sample captured during said current capturing (see Abstract, Lines 11-22); estimating means for generating an optimal illumination estimation for said sensor based on selectively accepted multiplicity of

image samples captured during said global exposure time (see Abstract, Lines 11-22). In light of the teaching of Pucker II, et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to include optimal illumination estimation means and processing means in the system of Ferre et al. Such an addition would allow for a decrease in motion blur and fixed pattern noise.

As to claim **23**, Ferre et al., as modified by Pucker II, et al., teaches the system of claim 22, further comprising: means for determining for each pixel a difference between an illumination measurement obtained during said current capturing and an illumination estimation generated during said previous capturing (see Ferre et al., Col. 2, Lines 58-62); means for comparing for each pixel said difference with a threshold value (see Ferre et al., Col. 2, Lines 63,64); means for updating for each pixel said illumination estimation with an accepted or deferred illumination measurement; and means for outputting for each pixel a final illumination estimation (see Pucker II, et al., Abstract, Lines 11-22).

As to claim **25**, Ferre et al., as modified by Pucker II, et al., the system of claim 23, wherein said threshold value is characterized by a first range of values and a second range of values that include said first range of values (see Ferre et al., Col. 6, Lines 37-40; *values greater than the threshold value*), wherein said first range of values is characterized by a first constant parameter m1 and said second range of values (see Ferre et al., Col. 6, Lines 66,67, Col. 7, Lines 1,2; *values greater than the second threshold* value) is characterized by a second constant parameter m2 where 0 < m1< m2 (see Ferre et al., Col. 6, Lines 66,67, Col. 7, Lines 1,2). *The language "wherein m1, m2, and length of global exposure time are chosen so to achieve a desirable balance between highest*

possible signal-to-noise ratio and least possible motion blur" is an advantage of the limitation in the claim; it is not a limitation of the claim.

As to claim **30**, Ferre et al., as modified by Pucker II, et al., teaches the system of claim 22, wherein said motion/saturation detecting means utilizes parameters calculated recursively (see Pucker II, et al. Abstract, Lines 11-22, "test image and previous image…").

As to claim **32**, Ferre et al., as modified by Pucker II, et al., teaches the system of claim 22, wherein said estimating means is calculated recursively (see Pucker II, et al., Abstract, Lines 11-22, "test image and previous image…").

6. Claims 5,8,34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferre et al. (see Patent # above) in view of Pucker II et al. (see Patent # above) and further in view of Sebe et al. (Non-Patent Literature).

As to claim **5**, Ferre et al., as modified by Pucker II, et al., teaches the method of claim 4. The claim differs from Ferre et al., as modified by Pucker II, et al., in that it further requires that said optimal illumination estimation is generated based on maximum likelihood.

In the same field of endeavor, Sebe et al. teaches stereo image matching using maximum likelihood estimation (see Abstract, Lines 4,5). In light of the teaching of Sebe et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Ferre et al., as modified by Pucker II et al., to include maximum likelihood estimation in the calculation of optimal estimation.

Maximum Likelihood Estimation closely approximates normal distributions thereby allowing calculation of variances with a greater level of confidence.

As to claim **8**, the limitations of claim 8 can be found in claim 5. Therefore, claim 8 is analyzed and rejected as previously discussed with respect to claim 5.

As to claim **34**, the limitations of claim 34 can be found in claim 5. Therefore, claim 34 is analyzed and rejected as previously discussed with respect to claim 5.

7. Claims 6,9,24,31,33,35 rejected under 35 U.S.C. 103(a) as being unpatentable over Ferre et al. (see Patent # above) in view of Pucker II, et al., and further in view of Sezan et al. (see Patent # above).

As to claim **6**, Ferre et al., as modified by Pucker II, et al., teaches the method of claim 4. The claim differs from Ferre et al., as modified by Pucker II, et al., in that it further requires that the optical illumination estimation be based on linear minimum mean square error.

In the same field of endeavor, Sezan et al. teaches estimation using linear minimum mean square error (see Abstract, Lines 8-12). In light of the teaching of Sezan et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to use LMMSE estimation to acquire the illumination estimation in Ferre et al, as modified by Pucker II, et al. Such estimation can take noise error of a sensor into account thereby outputting ideal illumination estimation.

As to claim **9**, the limitations of claim 9 can be found in claim 6. Therefore, claim 9 is analyzed and rejected as previously discussed with respect to claim 6.

As to claim **24**, Ferre et al., as modified by Pucker II, et al., teaches the system of claim 23, wherein said threshold value is generated based on a predetermined parameter (see Ferre et al., Col. 2, Lines 63,64). The claim differs from Ferre et al., as modified by Pucker II, et al., in that it further requires that the threshold value be generated based on a prediction variable.

In the same field of endeavor, Sezan et al. teaches determining an estimation based on a prediction variable (see Col. 3, Lines 13-16; *LMMSE is an estimation of noise minimization*). In light of the teaching of Sezan et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to use LMMSE prediction variable to acquire the threshold in the system of Ferre et al., as modified by Pucker II, et al. Such estimation can take noise error of a sensor into account thereby reducing the false positives of motion detection.

As to claim **31**, Ferre et al., as modified by Pucker II, et al., teaches the system of claim 22. The claim differs from Ferre et al., as modified by Pucker II, et al., in that it further requires that motion/saturation detecting means utilizes parameters calculated non-recursively.

In the same field of endeavor, Sezan et al. teaches calculating parameters non-recursively (see Sezan et al., Abstract, Lines 1-5). In light of the teaching of Sezan et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Ferre et al., as modified by Pucker II, et al., to include non-recursive estimating means. Such a modification would be much faster when implemented and would not consume as much memory.

As to claim **33**, Ferre et al., as modified by Pucker II, et al., teaches system of claim 22. The claim differs from Ferre et al., as modified by Pucker II, et al., in that it further requires that the estimating means be characterized as non-recursive.

In the same field of endeavor, Sezan et al. teaches calculating parameters non-recursively (see Sezan et al., Abstract, Lines 1-5). In light of the teaching of Sezan et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Ferre et al. to include calculating parameters non-recursively. Such a modification would be much faster when implemented and would not consume as much memory.

As to claim **35**, the limitations of claim 35 can be found in claim 6. Therefore, claim 35 is analyzed and rejected as previously discussed with respect to claim 6.

8. Claims 10,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferre et al. (see Patent # above) in view of Dong (US # 5,734,426).

As to claim **10**, Ferre et al. teaches the system of claim 1. The claim differs Ferre et al. in that it requires that each pixel's effective exposure time is adaptive to its own lighting condition. *The language "thereby enabling performing for each pixel independently of other pixels' lighting conditions" is an advantage of the limitation in the claim; it is not a limitation of the claim.*

In the same field of endeavor, Dong teaches each pixel's effective exposure time is adaptive to its own lighting condition (see Abstract, Lines 5-11). In light of the teaching of Dong, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Ferre et al. to include the each

pixel have the capability of adapting to its own lighting conditions. Such a modification would allow images to look natural without overly bright or dark areas.

As to claim **11**, Ferre et al., as modified by Dong, teaches the method of claim 1, wherein each pixel is capable of terminating its own exposure time (see Figure 2, Abstract, Lines 5-11). *The language "thereby enabling extending said global exposure time" is an inherent consequence of the limitation in claim 11.*

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ferre et al. (see Patent # above) in view of Sebe et al. (Non-Patent Literature).

As to claim **15**, Ferre et al. teaches the method of claim 1. The claim differs from Ferre et al. in that it further requires that said optimal illumination estimation is generated based on maximum likelihood.

In the same field of endeavor, Sebe et al. teaches stereo image matching using maximum likelihood estimation (see Abstract, Lines 4,5). In light of the teaching of Sebe et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Ferre et al. to include maximum likelihood estimation in the calculation of optimal illumination estimation. Maximum Likelihood Estimation closely approximates normal distributions thereby allowing calculation of variances with a greater level of confidence.

10. Claims 27,28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferre et al. (see Patent # above) in view of Pucker II, et al., and further in view of Dong (see Patent # above).

As to claim **27**, Ferre et al., as modified by Pucker II, et al., teaches the system of claim 22. The claim differs from Ferre et al. in that it requires that each pixel's effective exposure time is adaptive to its own lighting condition. *The language "thereby enabling performing for each pixel independently of other pixels' lighting conditions" is an advantage of the limitation in the claim; it is not a limitation of the claim.*

In the same field of endeavor, Dong teaches each pixel's effective exposure time is adaptive to its own lighting condition (see Abstract, Lines 5-11). In light of the teaching of Dong, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Ferre et al., as modified by Dong, to allow each pixel the capability of adapting to its own lighting conditions. Such a modification would allow images to look natural without overly bright or dark areas.

As to claim **28**, Ferre et al., as modified by Pucker II, et al. and Dong, teaches the method of claim 1, wherein each pixel is capable of terminating its own exposure time (see Figure 2, Abstract, Lines 5-11). *The language "thereby enabling extending said global exposure time" is an inherent consequence of the limitation in claim 11.*

11. Claims 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferre et al. in view of Pucker II, et al., and further in view of Merrill et al. (US # 5,962,844).

As to claim **36**, Ferre et al., as modified by Pucker II, et al., teaches the system of claim 22. The claim differs from Ferre et al., as modified by Pucker II, et al., in that it requires that the motion/detecting means and said estimating means are implemented based on a self-reset architecture.

In the same field of endeavor, Merrill et al. teaches an image sensor with self-reset architecture (see Figure 3, row reset "124") used in motion detection (see Abstract Lines 9-17). In light of the teaching of Merrill et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the self-reset architecture as a basis for the motion/detecting means and the estimating means in the image sensor of the system of Ferre et al., as modified by Pucker II, et al. Such architecture allows for lower cost of fabrication, low power consumption, and random access to desired pixel regions.

As to claim **37**, Ferre et al., as modified by Pucker II, et al. and Merrill et al., teaches the system of claim 36, wherein said self-reset pixel architecture utilizes self-reset digital pixel sensors (see Merrill et al., Figure 3, pixel "100", photodiode "120", reset transistor "n1").

As to claim **38**, Ferre et al., as modified by Pucker II, et al. and Merrill et al., teaches the system of claim 22, wherein said system is implemented on a single chip *{CMOS sensors and related timing devices and transfer devices are inherently implemented on a single chip. This a well-known advantage of CMOS sensors.}*.

As to claim **39**, Ferre et al., as modified by Pucker II, et al. and Merrill et al., teaches the system of claim 22, wherein said sensor is a digital pixel sensor (see Merrill et al., Figure 1).

As to claim **40**, Ferre et al., as modified by Pucker II, et al. and Merrill et al., teaches the system of claim 22, wherein said sensor is a photodiode (see Merrill et al., Figure 3, photodiode "120") and said illumination measurement represents a charge

accumulated from photocurrent produced by said photodiode (see Merrill et al., Figure 3, capacitor "122"; *{The capacitor is a charge accumulation device.}*).

Allowable Subject Matter

12. Claims 12,19,21,26,29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: As to claims **12** and **29**, the prior art does not teach or fairly suggest a method that teaches global exposure time being limited by motion and saturation only. As to claims **19** and **26**, the prior art does not teach or fairly suggest deferring the performing act or illumination measurement if the value of the difference of pixels is between a two threshold values. As to claim **21**, the prior art does not teach or fairly suggest a using a current illumination as a final estimation if motion/saturation has occurred, and updating a current illumination if no motion/saturation has occurred. *Applicant is asked to consider Pucker II, et al., Abstract, Lines 11-22.*

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Daniels whose telephone number is (703) 305-4807. The examiner can normally be reached on 8:00 A.M. - 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andy Christensen can be reached on (703) 308-9644. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AD
12/23/2004

NGOC-YEN VU
PRIMARY EXAMINER